

<<中国至2050年水资源领域科技发展>>

图书基本信息

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内容概要

As one of the eighteen field-specific reports comprising the comprehensive scope of the strategic general report of the Chinese Academy of Sciences, this sub-report addresses long-range planning for developing science and technology in the field of water science. They each craft a roadmap for their sphere of development to 2050. In their entirety, the general and sub-group reports analyze the evolution and laws governing the development of science and technology, describe the decisive impact of science and technology on the modernization process, predict that the world is on the eve of an impending S&T revolution, and call for China to be fully prepared for this new round of S&T advancement. Based on the detailed study of the demands on S&T innovation in China's modernization, the reports draw a framework for eight basic and strategic systems of socio-economic development with the support of science and technology, work out China's S&T roadmaps for the relevant eight basic and strategic systems in line with China's reality, further detail S&T initiatives of strategic importance to China's modernization, and provide S&T decision-makers with comprehensive consultations for the development of S&T innovation consistent with China's reality. Supported by illustrations and tables of data, the reports provide researchers, government officials and entrepreneurs with guidance concerning research directions, the planning process, and investment. Founded in 1949, the Chinese Academy of Sciences is the nation's highest academic institution in natural sciences. Its major responsibilities are to conduct research in basic and technological sciences, to undertake nationwide integrated surveys on natural resources and ecological environment, to provide the country with scientific data and consultations for government's decision-making, to undertake government-assigned projects with regard to key S&T problems in the process of socio-economic development, to initiate personnel training, and to promote China's high-tech enterprises through its active engagement in these areas.

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版权页：Main conclusions and view points:1) Nowadays water has become a strategic resource with multiple functions and attributes. The water issue in China is becoming increasingly prominent with its overall status of extreme severity and complexity due to the interaction between issues in water resource, water environment, water ecology, water disaster, and water management. In general, China's water issues have characteristics of being diverse, in transition, basin specific, and uncertain with its changing trend is not so optimistic. The water issue will constitute a key bottleneck that constrains China's socio-economic development in the long term.2) Characteristics and changing trend of China's water issue. A) Water resource. The total volume of water use will continue to increase and gradually become stable with corresponding increase of water supply capacity and improvement of water use efficiency though it is difficult to meet the international advanced level in the short time. The contradiction between water supply and demand will exist for a long time with its worsening in some areas. B) Water environment. There is large quantity of many kinds of pollutant. Water pollution has entered the phase of compounded pollution and eutrophication with worsening of rural non-point source pollution, severe underground water pollution in some areas, river basin and regional water issue becoming prominent, and high frequency of water pollution incident. C) Water ecology. The degradation trend of water ecological system can hardly be controlled with further worsening in some areas due to severe water and soil loss, overexploitation of water resource, heavy water pollution, and the impact of global climate change. D) Flood disaster. The frequency, intensity, and spatial distribution of drought and flood disasters are showing apparent changes with potential increase of damage and the probability of occurring extreme event of flood disaster. The issue of geo-environmental disaster caused by water resource exploitation has become increasingly severe. E) Water management. Several departments are engaged in the water management at national and large river basin levels without efficient coordination mechanism. The conflict between relevant water management regimes (laws and regulations) has been becoming apparent, lacking comprehensive and mutually supportive policies. Economic incentives are far from complete. The legal status of water related laws and regulations are not clearly defined.3) Taking into consideration of factors of multi-dimensions, it is estimated that the peak of China's water consumption will appear at around 2030 when the total volume of water consumption in China will be about 650 billion m³/a. Based on this estimation, the indicative targets of "A Roadmap to 2050 for China's Water Science & Technology Development" were set, including: A) The total volume of water supply will be 600 billion m³/a in around 2020; 650 billion m³/a in around 2030; 550 billion m³/a in around 2050. B) Water conservancy.

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